rWeather Newsletter

Statewide Traveler Information Web Site

The Washington State Department of Transportation (WSDOT) continues to provide valuable on-line traveler information to the public in creative and effective ways. Since 1999, WSDOT's rWeather Web site has led the country in using intelligent transportation systems data to provide travelers with real-time road and weather information. Now WSDOT has replaced the original rWeather site with a more user-friendly version for traveler information.

The newest rendition of the original rWeather site, launched in February of this year, is WSDOT's Statewide Traveler Information site, http://www.wsdot.wa.gov/traffic.

In 2002 and 2003, the WSDOT Web site was visited an average of 1.5 million times per day, with 90 percent of those visits to the second iteration of the rWeather Web site. However, WSDOT communication experts believed that there was still room for improvement.

Laura Merritt, WSDOT's Interactive Communications Manager, said that during this time "Users often had a difficult time finding construction information, accident information, and highway closure information because the data was located in three different places." So in the summer of 2003, designers began revamping statewide traveler information on the Web.

See ***Traveler Web Site*** on page 2.

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Additional Stories:

Find this publication on the web at:
http://www.wsdot.wa.gov/biz/atb/rweather.htm

Washington State's 5-1-1 System

One year ago, the Washington State Department of Transportation (WSDOT) deployed its 5-1-1 Travel Information System. Since then, the 5-1-1 system has become a valuable resource, handling over 143,000 calls a month in Washington.

WSDOT's 5-1-1 system joins those of 20 other cities and states nationwide that offer 5-1-1 service. According to the national 5-1-1 Deployment Coalition, by the end of 2004, seven more communities will have implemented the 5-1-1 system, making it one of the most used traveler information systems in the country.

WSDOT Project Manager Eldon Jacobson said, "Because the information is gathered electronically, directly from roadway sensors, 5-1-1 provides the most up-to-date information possible from any source."

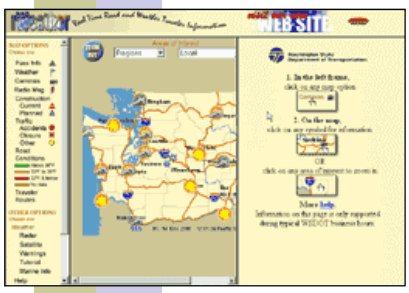
Probably the most notable element of the state's 5-1-1 system is its synchronization with WSDOT's Statewide Traveler Information Web site. Each incident, construction project, and slowdown is communicated simultaneously on the Web and via the phone.

See ***5-1-1*** on page 3.

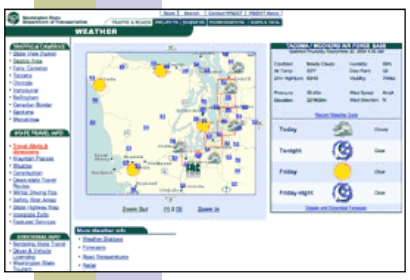
511 Travel Info

Washington State Department of Transportation
Federal Highway Administration

Traveler Web Site *(from page 1)*



Screenshot of old rWeather Web Site



Screenshot of New Traffic & Weather Web Site.

Changes were based on public feedback over the past two years. Merritt said, "People asked for more traffic cameras, easier ways to find information, and consolidated mountain pass reports, including traffic impacts, forecasts, traction advisories, and highway advisory radio messages."

WSDOT released a beta version of its much anticipated site redesign in early 2004. One new element is a section called *Travel Alerts & Slowdowns*, which combines incidents, construction, events, and anything else that might impede or slow travel on the roads.

Another change is consolidated mountain pass information, with each major pass, such as Snoqualmie and Stevens passes, occupying its own page. These pages allow visitors to view camera images spanning the length of the pass, traction advisories, highway radio messages, and current and forecasted weather information.

"We also made weather information easier to use and find by creating a home page for weather where all components from the original rWeather site are gathered in one user-friendly place," said Merritt.

The weather page can be found at www.wsdot.wa.gov/traffic/weather.

"The public response was very favorable, and stats show people are using the site with an every-increasing appetite," Merritt added.

In the redesign, WSDOT took advantage of the expertise of its high-tech Puget Sound neighbor and developed the new site with Microsoft's .NET technology. WSDOT also bought more servers, increased bandwidth, and put all of its data in XML.

During beta testing of the new site, a massive snowstorm drastically affected statewide travel. This winter storm provided the best possible conditions under which WSDOT could hope to test the capacity of the new site.

In fact, on the worst day of the storm, January 6, 2004, the site received over 12 million page views in one day, a dramatic increase over the previous 123,000 page views per day. Merritt said, "The images server alone was hammered with 200 requests per second."

What does the future hold for WSDOT's Statewide Traveler Information Web site?

Using the same methodology as was used for the previous redesign, the Interactive Communications Office is currently upgrading the Seattle area's traveler information Web site. It is focusing on making the site more user-friendly for existing visitors, as well as on attracting new visitors.

The redesign will enhance the visitor experience for commuters and cross-state travelers by creating a seamless interface between the Seattle Area Traffic Web site and the Statewide Traveler Information site.

As funding allows, personalization will also be added so that visitors can limit information to their own interests. Once this feature is in place, viewers will be able to log onto the site and choose the cameras, travel times, and weather information that are most relevant to their traveling practices.

In addition, they will be able to sign up for e-mail alerts regarding travel on their chosen routes. These improvements are planned for implementation by the end of 2005.

"The public response was very favorable, and stats show people are using the site with an ever-increasing appetite."
- Laura Merritt

5-1-1 *(from page 1)*

"It just makes sense," Jacobson said. "The goal was to have synchronized data with the Web site, and since the data infrastructure was already in place, we just designed the 5-1-1 system to use the same process."

A massive statewide snowstorm in January 2004 tested the capacity of the 5-1-1 system. With the traffic challenges resulting from the storm, the number of 5-1-1 callers jumped from just above 16,000 to over 63,000. Fortunately, WSDOT engineers had anticipated the need for increased service and added a new machine to increase capacity in October 2003.

Improvements are still needed to the voice activation system, which has frustrated some callers. An accent or an inability to speak clearly enough limits users' ability to extract information. Ambient noise is also often a problem for cell phone users.

Jacobson said, "When the 5-1-1 system was first envisioned, it was thought voice recognition would help keep driver's eyes on the road. We have since learned that we need to offer a touch-tone option as well."

In response, WSDOT has asked its consultant, Interactive Northwest Inc., to add touch-tone capability to the voice-activated system by the start of the 2004 winter season.

Improvements to the menu system by consolidating menu options and making it easier for local commuters to access traffic information faster are also in the works.

Until then, WSDOT will continue to provide the previous traveler information number of 1-800-695-ROAD, as well as the current 5-1-1 system.

"The goal was to have synchronized data with the Web site"

- Eldon Jacobson

M.D.S.S. Implementation

A full release of the Maintenance Decision Support System (MDSS), including all enhancements and documentation, will be available in the fall of 2004 as part of MDSS Release 3.0.

The MDSS, developed in part by the Federal Highway Administration, is intended to provide maintenance managers with extremely detailed weather forecasts and recommended treatment strategies, and to allow managers to evaluate the effectiveness of alternative strategies.

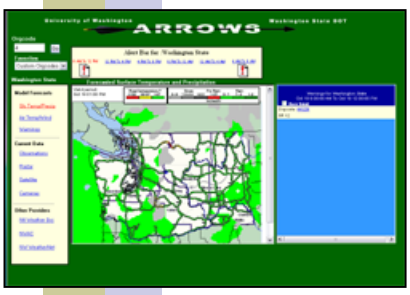
According to the National Center for Atmospheric Research (NCAR), an organization contributing to the development of the MDSS prototype, the project goal is to provide an interface displaying the state of the roadway and, by capitalizing on existing road and weather resources, process data to generate diagnostic and prognostic maps of road conditions and corridors of up to 48 hours.

The MDSS will then recommend road maintenance courses of action on the basis of the roadway condition data it receives. All of this will be viewed on a single computer platform, with a simple and intuitive working interface that switches between recommended maintenance procedures and anticipated consequences of action or inaction.

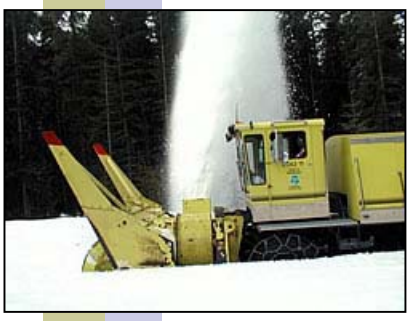
The MDSS functional prototype was field tested in Iowa. Materials related to this test are available at www.rap.ucar.edu/projects/rdwx_mdss/iowa.html. The first field test took place in February and March of 2003. As a result of that field demonstration, significant changes were made to the MDSS software. The Road Condition and Treatment Module (RCTM), which includes the road temperature module (SNTHERM-RT), Rules of Practice Module, and chemical concentration algorithms, was enhanced. Another field test then occurred between December 2003 and April 2004, and Release 2.5 was made available in April 2004 (see www.rap.ucar.edu/projects/rdwx_mdss/release2/registration_release2.5.html).

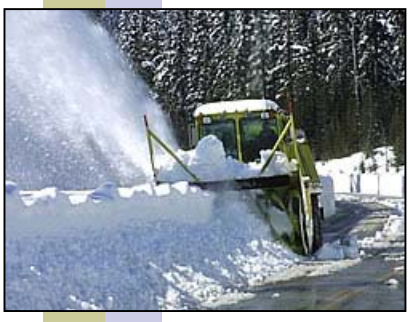
WSDOT Maintenance Crew clearing Washington Pass Summit

A.R.R.O.W.S. Forecasting System Review



Screenshot of the ARROWS application





WSDOT Maintenance Crew widening roadways on mountain passes

After a 2003-2004 winter season of weather forecasting challenges, an in-house survey of Washington State Department of Transportation (WSDOT) winter maintenance personnel revealed that the majority of field personnel think that information provided by the ARROWS (Automated Real-time ROad Weather System) weather forecasting system is good or very good.

ARROWS is a collaboration of WSDOT's Intelligent Transportation System (ITS) Office and the University of Washington's Department of Atmospheric Sciences to build weather information and forecasting Web pages specifically tailored to maintenance managers' desires and needs.

It was developed in response to suggestions by WSDOT Maintenance Managers in June 2002that with more accurate forecasts they would be able to tell not only where but when inclement weather was due. Such a tool would be valuable in helping them keep Washington State highways safe and passable during winter months.

In the winter of 2003, ARROWS was made available to all WSDOT winter maintenance managers. A training course was offered to help potential users understand how ARROWS was developed and how to use it. The training was conducted during the 2003-2004 winter in group sessions or as a hands-on session in a maintenance facility.

ARROWS performed well during the first portion of the 2003-2004 winter. The system correctly forecast an early snowfall in the Cascades in September 2003. In late October 2003, ARROWS also correctly forecast a no-snow situation in the Puget Sound area. This became the basis for a television interview with a WSDOT highway maintenance crew, who touted the benefits of having accurate forecasts to avoid unnecessary personnel callouts and associated costs.

Unfortunately, ARROWS, like all meteorological models, is unable to deal properly with the boundary layer near the surface of the earth. This caused inaccurate predictions west of the Cascades in January 2004. Similar problems arose east of the mountains during mid-January. As a result of these problems, some users reverted to their previous methods of gathering or obtaining weather information.

Nevertheless, WSDOT's survey of ARROWS users regarding the usefulness and presentation of its information suggests that most field personnel would like continued access to the system, as well as continued development of its capabilities.